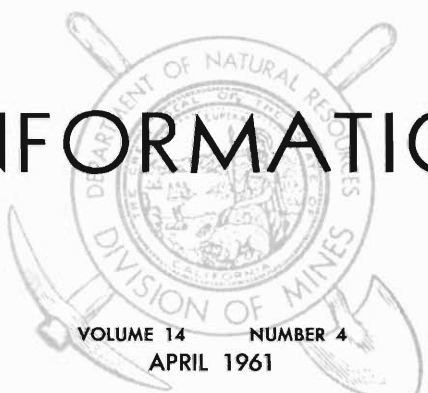


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PLEISTOCENE LAKES OF SOUTHEASTERN CALIFORNIA — I

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In the recent geologic past much of the desert region of eastern and southern California was covered by numerous and extensive inland lakes. These lakes have long interested geologists because they indicate that during Pleistocene time this part of California had a much different climate than it has today and because the lakes are a repository of numerous industrial minerals. Of these, the most valuable group is the salines which include such basic industrial materials as borates for modern fuels, potash for fertilizers, and salt for chemicals. The annual value of minerals mined in California has reached many millions of dollars. A large part of this production comes from deposits in these lake basins. Industrial minerals of less commercial importance, but whose origin is closely related to the lake basins, are diatomaceous earth (diatomite), clay and pumicite. Freshwater diatomaceous earth is used mainly as a filler and insulation material. The lacustrine clays are commonly suitable as a base in oil-well drilling fluids; pumicite has been used extensively as an aggregate, an abrasive and a filler. The flat floors of the basins themselves are used for defense installations, such as Edwards Airforce Base on Rogers dry lake and the U.S. Naval Ordnance Test Station on China Lake.

The southern desert region, which lies in the arid rain shadow east of the Sierra Nevada and north of the Transverse Ranges, is one of broad, generally undrained depressions that lie between desert ranges. North of the Garlock fault, which bisects the region in an east-west direction, the mountain ranges trend north-south. South of the fault, in the Mojave Desert proper, the mountains are oriented in various directions

and the intermontane valleys are deeply buried by alluvium. The region is drained mainly by intermittent streams that do not reach the sea, but sink gradually into dry channels or spread into the playas to form shallow lakes during times of heaviest rainfall.

Of the three principal drainage areas in the region—those of the Owens, Amargosa and Mojave Rivers—the Owens is the largest. The Owens River rises in the Sierra near Long Valley in Mono County, then follows the Owens Valley trough southward. Beyond Tinemaha Reservoir it is diverted into the Los Angeles aqueduct system. South and east of Owens Lake the natural course of the Owens River follows an ancient channel through Little Lake to Indian Wells Valley.

The Amargosa River originates near Beatty in western Nevada. It drains southward along the Amargosa Valley and across the California border thence westward around the southern end of the Black Mountains and northward into the basin of Death Valley. During the winter months it commonly contains running water for most of its course.

The Mojave River drainage, which lies mostly south of the Garlock fault, covers most of the Mojave Desert. It drains a large area in the San Bernardino Mountains before it emerges onto the desert floor west of Lucerne Valley. Once the river reaches the arid desert region it becomes progressively smaller and during part of the year the river bed is entirely dry. However, its course can be traced northward past Barstow and to the northeast toward Soda Lake which it may reach during periods of high rainfall.

In this region geologists have noted ancient shorelines preserved hundreds of feet above the floors of many of the playas, and sand bars, tufa domes, and lacustrine deposits in the basins themselves. This evidence indicates that numerous lakes, tens, even

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